NWPP Resource Adequacy
Public Webinar

January 29, 2020 1:00-2:30 PM

NORTHWEST PowerPool

AGENDA

1:00-1:15 **Status Update**
Frank Afranji, NWPP

1:15-2:20 **Program Design Recap and Updates**
Geoff Moore, Portland General
Charles Hendrix, SPP
Charles Cates, SPP

2:20-2:30 **Next Steps**
Julie Peacock, BPA

STATUS REPORT AND TIMELINE

FRANK AFRANJI, NWPP PRESIDENT

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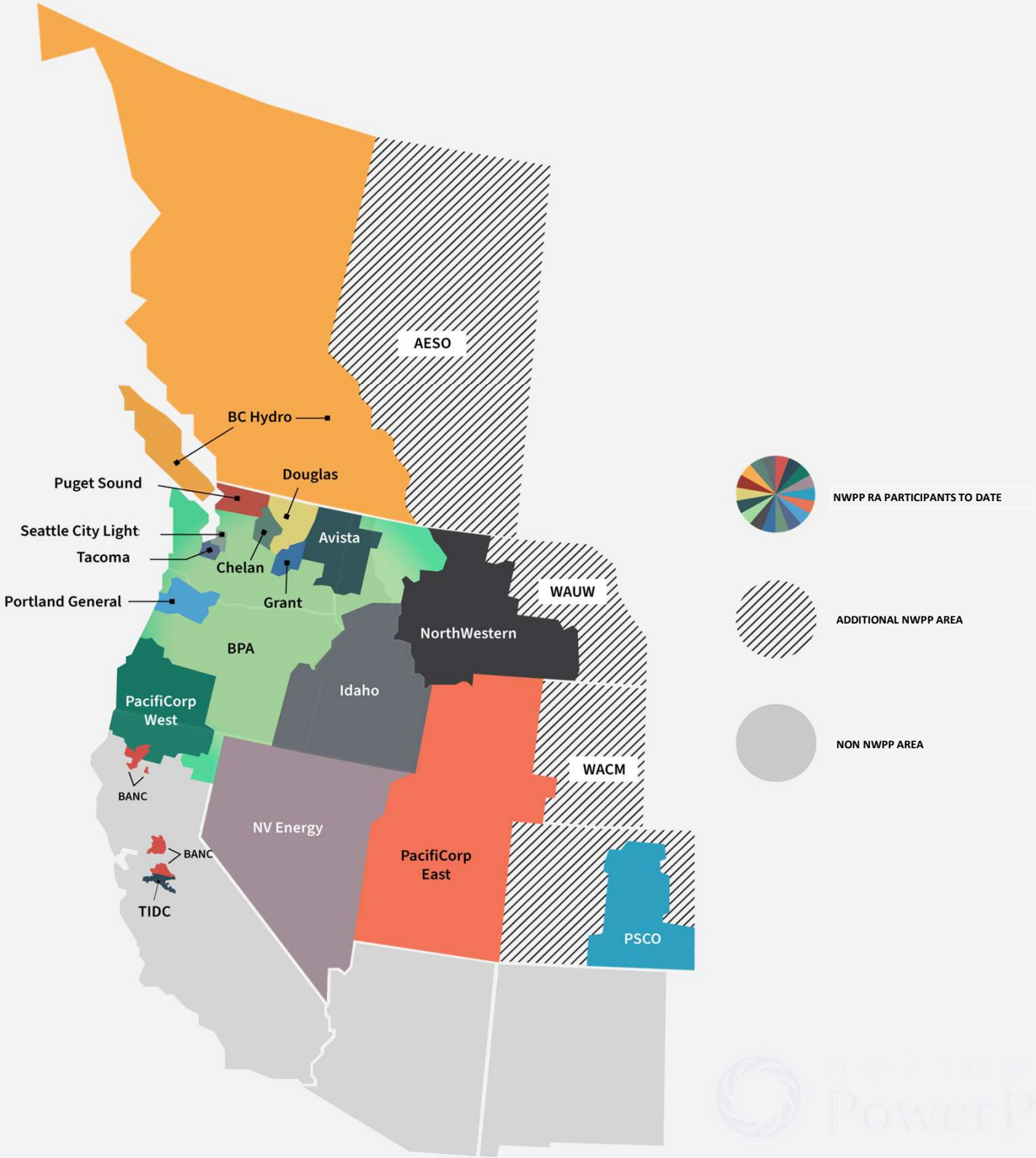
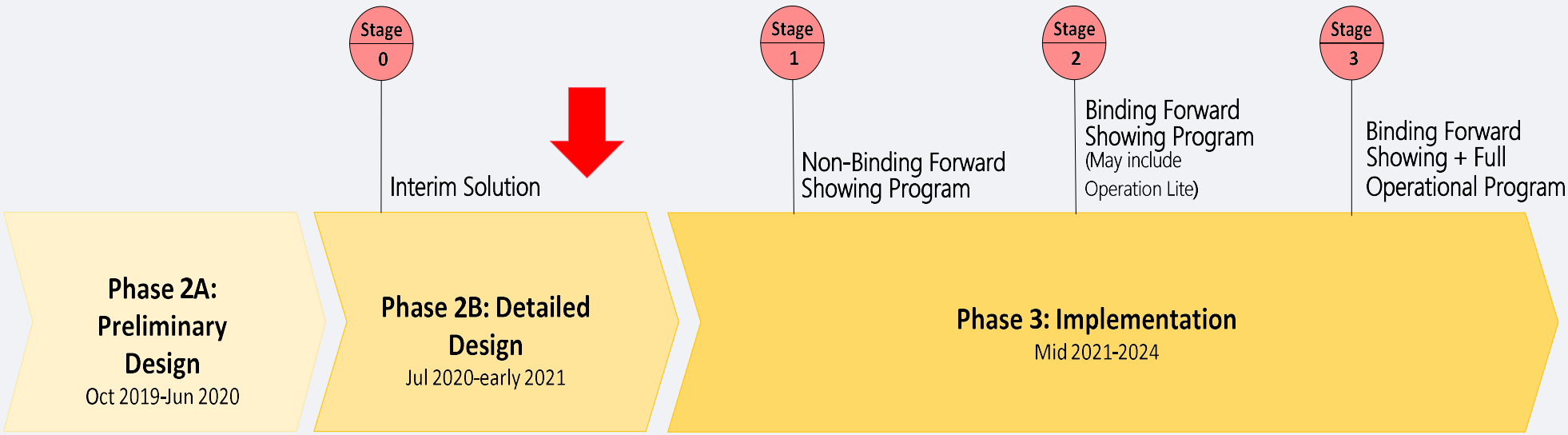
Status Report

- Colorado Public Service Company joined the Steering Committee—20 total participating members
- Completed preliminary program conceptual design, detailed design phase underway
  - *Developed and released to public "conceptual design document" on NWPP website*
  - *Comments/questions received from SAC members and responses provided in comment matrix*
- Hired Experts
  - *Southwest Power Pool in Program Developer role*
  - *Wright & Talisman on regulatory/legal/governance*
  - *Carl Monroe, program design review, former SPP executive*
- P99 interim solution go-live Summer 2020, Winter go-live Dec 3

NWPP RA PARTICIPANTS



Overview of Project Timeline



Conceptual Design Recap and Updates

Presenters:
Geoff Moore, Portland General Electric
Charles Hendrix, SPP
Charles Cates, SPP

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Snapshot of NWPP RA Program Preliminary Conceptual Design: Forward Showing Program		Update
Market Structure	Bi-lateral - entities will continue to be responsible for determining what resources and products to procure and from where	No change from 2A
Participation	Voluntary to join - joining commits participants to meeting established requirements or incurring penalties (i.e., not "voluntary" to comply once committed) and to an operational program where they are obligated to deliver diversity benefit when called upon. Process will be established to join or leave the program	More details under consideration with SWG
Point of Compliance	For further discussion with stakeholders in Phase 2B: Detailed Design - currently considering obligations at the LSE level	More details under consideration with SWG
Administration	Program Administrator will likely have to be a FERC jurisdictional entity to the extent that it administers program elements that are subject to FERC jurisdictions, which means it will also have to meet federal "public utility" standards for neutrality - Phase 2B will also consider multiple layers of program administration that may not require FERC jurisdiction	More details under consideration with SWG and SC
Compliance Periods	Two binding seasons: Summer and Winter Fall and Spring seasons would be advisory (no penalties for non-compliance, but metrics would be provided)	SC proposing refined recommendation / added detail

Snapshot of NWPP RA Program Preliminary Conceptual Design: Forward Showing Program		Update
Forward Showing Period	Forward showing will occur 7 months in advance of binding seasons, with a 2-month cure period	SC proposing refined recommendation / added detail
Planning Reserve Margin	Seasonal Planning Reserve Margins will be determined for summer and winter periods and expressed as a percentage of the 1-in-2-year seasonal peak load forecast	SC proposing refined recommendation / added detail
Resource Capacity Accreditation	Resource Capacity Accreditation will be based on methodologies appropriate to resource type, including: 1. **Variable Energy Resources:** ELCC analysis 2. **Run of River Hydro:** historical data and ELCC analysis 3. **Storage Hydro:** Common hydro model that considers appropriate set of water conditions allowing Program Administrator to verify data. Phase 2A included development of a conceptual storage hydro capacity methodology, which will be further considered as part of Phase 2B: Detailed Design 4. **Thermal:** UCAP method 5. **Other resource capacity crediting** (e.g., demand-side resource, pump storage, behind-the-meter solar): for further development in Phase 2B: Detailed Design	Refinement and more details added to 2A recommendation- demand response
Penalty for FS Non-Compliance	Deficiency payment based on CONE for a new peaking gas plant (e.g., SPP's CONE calculation) - further discussions on deficiency payments are anticipated in Phase 2B	SC considering added detail

Snapshot of NWPP RA Program Preliminary Conceptual Design: Operational Program

		Update
Framework for Accessing Pooled Capacity	**Accessing Entity:** › Can only call on pool capacity when Load + Contingency Reserves > Forecasted peak load + PRM – forced outages – VER underperformance +VER over-performance › Participants can only access pooled capacity equal to the amount of load over their reliability metric **Providing Entity:** › Administrator will ask those not experiencing loads over their RA obligations assist › Could request the difference between their RA obligations and forecasted load	Refining 2A recommendation with an Operational Program Design workstream with SPP
Transmission and Deliverability	› Will require modeling to identify any transmission considerations in the operational time frame › Recommendations associated with transmission availability in the operational time horizon will be made in Phase 2B	Under SC and workgroup discussion
RT Delivery Failures	› Considered without recommendation in 2A	Under SC discussion

Design Update

- Design elements of the program are still being discussed with the Steering Committee
  - Using preliminary 2A recommendations, framing and input from Program Developer, and Stakeholder considerations and comments from Conceptual Design
- Design updates for further discussion today:
  - **Timelines** (compliance seasons, LOLE and ELCC studies, operational time horizon)
  - **Operational Program** approach
  - **Demand Response** (initial considerations)

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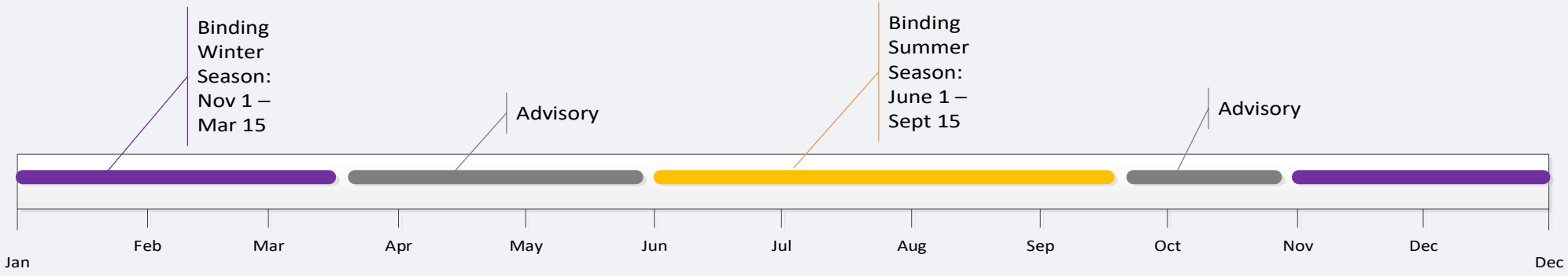
Forward showing Program Timeline Recommendations

Recommendations from the SC during Phase 2B:

- Adjusted binding seasons
- Review of the data supported a reduction to the binding period of the winter season of 15 days and the reduction to the binding period of the summer season by 15 days
  - Winter: Nov 1 – Mar 15 (binding)
    - *2A Recommendation: Nov 1 – Mar 31*
  - Summer: Jun 1 – Sep 15 (binding)
    - *2A Recommendation: Jun 1 – Sep 30*



FS Program Timeline Recommendations

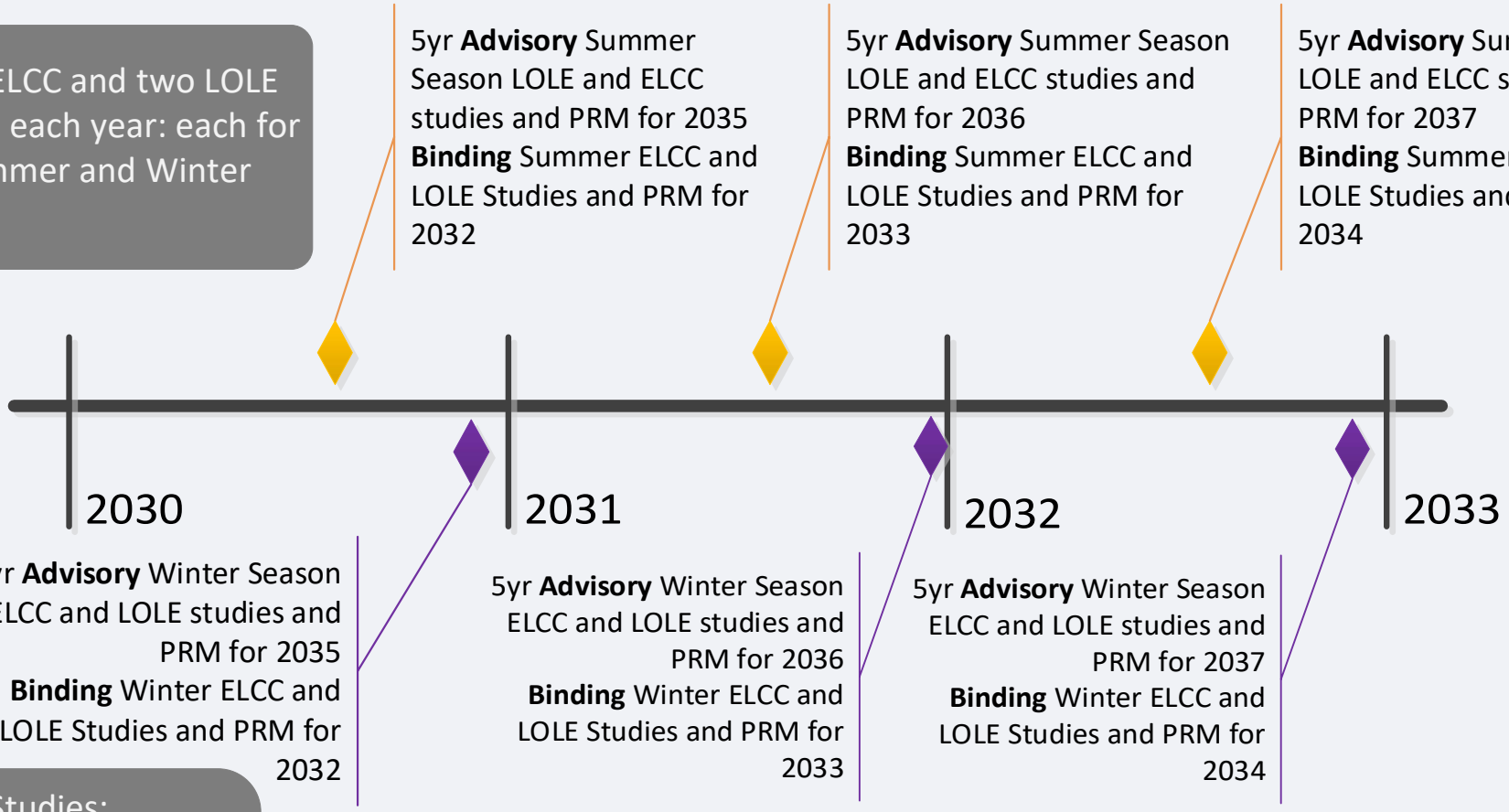
- Consensus to keep the Compliance Showing Deadline of March 31st of 7 months prior to the start of the winter and summer seasons
- Two-month cure period maintained but deadlines were added for the PA to provide notice back to entities that they are short of meeting program requirements – two-month cure period now begins after PA notifies participants of deficiency
  - Winter
    - Showing deadline: Mar 31
    - **NEW: PA notifies participants of any deficiency by May 31**
    - Participants must cure by Jul 31 (previously May 31)
  - Summer
    - Showing Oct 31
    - **NEW: PA notifies participants of any deficiency by Dec 31**
    - Participants must cure by Feb 28 (previously Dec 31)

Study and Metrics Timing

- **Loss of load expectation (LOLE) -** objective for 1 day in 10 years where capacity is expected to be insufficient to meet load plus contingency reserves - seasonal LOLE objectives will be determined separately for summer and winter periods
- **Planning Reserve Margin (PRM) -** determined via comprehensive modeling approach, resulting in a level that ensures the RA footprint will meet the RA Objective (1-in-10 LOLE)
- **Effective Load Carrying Capacity (ELCC) -** used to determine with qualifying capacity contribution of VERs and run-of-river hydro – values calculated here used in LOLE calculation

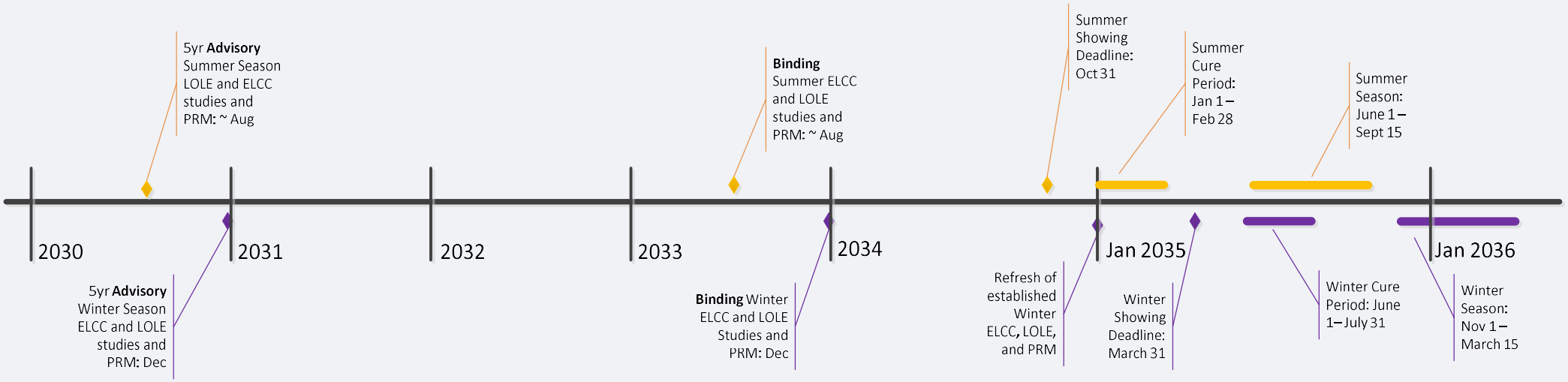
ELCC AND LOLE CADENCE

Two ELCC and two LOLE studies each year: each for Summer and Winter



LOLE Studies:
- 5-year-out advisory PRM
- 2-year-out binding PRM

EXAMPLE TIMELINE FOR 2035/2036



Note that the ***advisory*** capacity contribution (ELCC) and PRM (LOLE) studies conducted during each binding study window for the following five years (i.e. studies in August 2033 would provide information for 2038)

Operational Program Objectives

- Enabling program participants to access one another's diversity
  - *The regional PRM will be lowered in the Forward Showing to account for regional load and resource diversity*
  - *This means we need to ensure participants can access pooled resources when they need them (and their neighbors do not)*
- Meet these needs with a light and reliable touch:
  - *Will not tell participants how to operate or what resources to dispatch*
  - *No market – still using bilateral transactions*

Operational Program Benefits

- Lower total regional capacity need means overall smaller need to enter into energy or capacity agreements to support RA requirements
- Less likely that participants must build new capacity to meet regional RA requirements (vs. each meeting separate metrics)
- Participants that have capacity in excess of their PRM requirement can market that "surplus" capacity instead of holding back to cover greater uncertainty in serving their load without program support
- Participants experiencing unusually high load or resource underperformance can count on fellow participants to provide capacity

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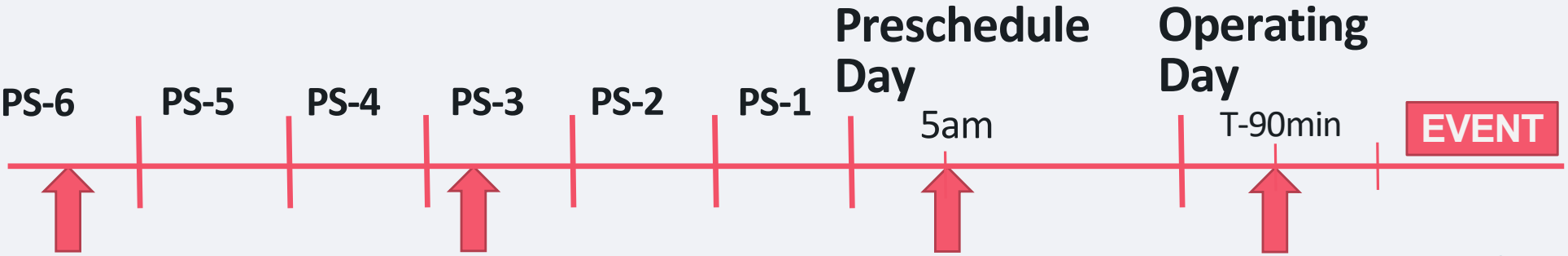
Operational Program
Sharing Requirement

- While the forward showing program is a snapshot of forecasted loads and capacity contributions, **the operational program compares near-term operating conditions to forward showing metrics on a rolling basis**
- Sharing Requirement Calculation is run at various intervals to estimate and determine how much of the pooled capacity (from forward showing) will be required by the program for operations (if participant(s) are deficit and require assistance).
  - *Forward Showing planning assumptions are adjusted to account for operating conditions (forced outages, resource performance)*
  - *Near-term forecasted load is subtracted from planning assumptions to determine an entity's sharing requirement*
  - *A positive (+) sharing requirement means a participant must **provide** pooled capacity; a negative (-) sharing requirement means a participant is **eligible to access** pooled capacity*

OPERATIONAL PROGRAM

TIMELINE



Multi-Day Assessment

- PA will run sharing requirement calculations to forecast sharing needs
- Length of this assessment to be determined

Multi-Day Ahead Release

- Special circumstances and "as possible"

Preschedule Sharing Requirement Calculated

- Entities with positive preschedule sharing requirement hold back capacity
- Entities do not schedule energy at this time
- Capacity beyond calculated need ("pooled surplus") is released (entities can market; will not be called upon)

Rolling Calculation of Sharing Needs on OD

- PA determines needs of short entities/long entities
- Entities schedule energy
- Capacity determined not needed at T-90 is released (entities can market)
- If needs exceed preschedule calculations, request for best effort deployment of surplus

Forward Showing Program
Qualifying Capacity Contribution of Demand Response Programs

- **Initial Recommendation**
  - *A methodology will be developed to calculate the Qualifying Capacity of demand response (DR) programs*
- **Considerations**
  - *As many NWPP member entities have existing DR programs, and such programs are expected to continue to proliferate, the RA program will include consideration of the DR and their treatment with respect to Qualifying Capacity contribution*

Forward Showing Program
Qualifying Capacity Contribution of Demand Response Programs

- **Phase 2B**
  - *Conduct a review of the treatment of DR programs in other RA programs to develop a set of best practices*
  - *Determine the appropriate categorization of DR types to be considered and the associated qualification requirements*
  - *DR should include consideration of DR that can be actively controlled versus DR that is uncontrollable and may not respond in capacity critical hours*

Forward Showing Program
What other RA programs are doing with DR Resources?

- Other RA programs have classified DR programs in one of two ways
  - ***Load Modifier***
  - ***Capacity Resource***
- **Load Modifier** –DR program considered a reduction of the participant's net peak demand – i.e. reduction in load
  - *Planning reserves are not required to be carried for a program that is considered a load modifier*
- **Capacity Resource** – the DR program is considered a resource that serves the Participant's load
  - *Capacity Resources are subject to be backed up with planning reserves – e.g. a 10MW program would need 1.5MW of planning reserves if PRM is 15%*

Forward Showing Program

What other RA programs are doing with DR Resources?

Program	Load Modifier	Capacity Resource
CAISO	X	
SPP	X	
MISO (capacity market)	X	X
PJM (capacity market)	X	X

Forward Showing Program
Further Considerations for NWPP

- DR Programs that are to be considered 'load modifiers' and controllable and dispatchable should be able to
  - *Demonstrate control of the program*
  - *Meet the testing criteria or demonstrate a load reduction*
  - *No ability to economically opt out*

QUESTIONS?